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Organising Student Support Services: A Closer Look at the Needs and Satisfaction Levels of Working University Students in Estonia

Mohammad Abu Sayed Toyon*

School of Business, European College of Polytechnics, Estonia
Center of Management Research, Estonian Business School, Estonia

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*Correspondence:

mohammad.toyon@ebs.ee

ABSTRACT

This study explores the specific support needs of working university students and examines how socio-demographic factors (age, qualification, field of study, parental education, work hours, and education-job alignment) influence their satisfaction with support services (tutoring, academic writing, mentoring, library, computer centre, and balancing study-work-family). Using Estonian-based Eurostudent VII survey data and student interviews, the study revealed unique strengths and substantial gaps in support services. High satisfaction with learning facilities (library, computer centre, work places) suggested successful resource allocation, while significant dissatisfaction with services for balancing studies and work or family indicated urgent areas for improvement. The field of study and education-job alignment significantly influenced satisfaction with study support services, such as organised tutoring, academic writing, bridging courses, and mentoring. Satisfaction with learning facilities, including libraries, computer centres, and workspaces, was primarily affected by the field of study and age. Support for balancing studies and jobs showed significant variation based on qualification type and age. Additionally, satisfaction with support for balancing studies and family life was influenced by the field of study and the number of work hours per week. Students working (<20 hours/week) in non-aligned jobs require cross-training and skill-bridging courses. Those working (>20 hours/week) in aligned jobs need flexible scheduling and job retention services, while those in non-aligned jobs need career transition support. By revealing these insights, this study contributes to the discourse on supporting working students.

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The Estonian higher education sector is currently navigating a period of significant transition, characterised by efforts to cater to an increasingly diverse student population. Among these students, working university students stand out as a particularly noteworthy demographic. Economic and social changes have turned this group into a unique and significant segment within universities. Addressing their needs poses distinct challenges, making it essential to understand and enhance their satisfaction with available support services.

Recent data from Statistics Estonia (2024) reveals that the employment rates of young students have varied over the past few years. In 2017, there were 22,392 working students, which increased to 22,923 in 2018. Although there was a decline in 2020, the numbers rose again to 21,998 in 2021. Additionally, overall employment figures increased from 40,835 in 2020 to 43,607 in 2023, showing a growing accommodation for student workers in the labour market. The interaction between students' academic and employment environments affects the support services they require, their satisfaction, and their outcomes (Beerrens et al., 2010; Bornschlegl & Caltabiano, 2022). As these tendencies persist, it will become more important to understand the specific needs of working students and their satisfaction with the services provided by universities, as these are integral to their academic success.

Student support services play a critical role in improving the academic experience, employability, and easing the transition into the workforce (Hayden & Ledwith, 2014; McGrath, 2002). These services include academic assistance, social support, career guidance, and campus facilities. As the educational market evolves and student profiles become more diverse, the needs and preferences regarding support services also vary widely (Dey & Cruzvergara, 2014). In Estonia, universities are striving to create an enriching learning environment that combines academic rigour with various support services, aligning them with the distinct needs of students (Löfström & Eisenschmidt, 2009; Morita, 2018). Understanding student satisfaction with these support services is crucial, as it offers insights into areas needing improvement (Campos & Campos, 2023; Engelland et al., 2000; Terzaroli & Oyekunle, 2019).

Multiple studies have explored the effectiveness of student support services and their impact on student outcomes (Guthrie et al., 2022; Lehker & Furlong, 2006; Vinson et al., 2014). These studies acknowledge the diverse needs of students stemming from their varying backgrounds, commitments, and aspirations. Nonetheless, literature often ignores the realities of working students, putting a focus on the traditional non-working students (Toyon, 2023, 2024a). Research by Remenick and Bergman (2021) and Usher and Kwong (2014) has highlighted the heightened support needs of working students, who often struggle to balance academic and work commitments. Several researchers have emphasised the importance of aligning student support services with student needs to boost satisfaction and academic outcomes (Bradley et al., 2021; Fung & Wong, 2012; Turner & Berry, 2000). These studies reveal that many students still have unmet needs despite existing support services, indicating a need for more precise and effective support strategies.

For universities to support students effectively and ensure their academic success, it is crucial to understand both institutional factors and how socio-demographic factors influence their satisfaction with services, as well as to identify the specific additional support they require (Martirosyan, 2015; Nwenyi & Baghurst, 2013). In this context, little is known about the specific demands and satisfaction levels of Estonian working university students regarding the support provided by universities. This research aims to fill this gap by analysing university

support services and assessing how well they meet the unique demands of students, especially working students. Understanding the interplay of socio-demographic factors and student satisfaction can provide valuable insights for creating an inclusive, effective, and equitable educational environment that tailors service provision, addresses disparities, informs resource allocation, supports student retention and success, and contributes valuable insights to educational research and policy development. Therefore, this research intends to answer the following questions: Are working university students satisfied with the support they receive from their universities? How do socio-demographic factors influence the satisfaction of working university students in Estonia with various support services from universities, and what are the specific services these students need from universities? The rest of the paper is organised into the following sections: literature review, methodology, results and discussion, and conclusion.

Literature Review

Conceptual Clarification

Universities offer a wide variety of services. Multiple studies have shown evidence of transformations in the types, delivery, and quality of services offered by universities globally (Dey & Cruzvergara, 2014; Ellison et al., 2018; Maloni et al., 2019; Yang et al., 2002; Zahid et al., 2020). Accommodation assistance, health and wellness facilities, libraries, study spaces, sports and recreation, and multi-faith institutions are among the services that assist students in adjusting to university life and preserving a healthy balance. Academic support, including tutoring, language classes, mentoring, and advising, enhances students' confidence and performance, while career services, including counselling, resume seminars, internships, and networking events, prepare them for their professional futures. Diversity and inclusion services, such as cultural centres, anti-racism initiatives, and accessibility resources, guarantee that all students feel respected and supported. Furthermore, student life and engagement opportunities, such as clubs, athletics, leadership programmes, and volunteer activities, foster community and improve the university experience. These support services play a crucial role in assisting students with the transition from academia to the professional world and are often tailored to equip students with the necessary competencies to navigate the professional sphere (Bradley et al., 2021; Rowley & Purcell, 2002; Schlesinger et al., 2021).

Service quality and student satisfaction, while interconnected, represent distinct constructs in higher education that must be understood to enhance the student experience effectively (Athiyaman, 1997). Service quality refers to an overarching, long-term evaluation of the university's offerings, encompassing factors such as teaching effectiveness, accessibility of staff, and the adequacy of facilities, which collectively reflect a holistic perception of the institution's performance. In contrast, student satisfaction is a short-term, transaction-specific reaction to individual educational experiences, such as particular courses or service interactions. While high service quality generally enhances student satisfaction, the latter is more immediate and influenced by whether specific encounters meet or exceed students' expectations. Understanding these distinctions is crucial for universities aiming to improve both overall institutional reputation and day-to-day student experiences (Athiyaman, 1997).

Support service satisfaction is a critical area of focus for university managers, as it encompasses both student support services and student satisfaction, forming the concept of

student support satisfaction. This means that the effectiveness and quality of support services provided by an educational institution directly affect how satisfied students are with their overall experience. When these services are well-integrated and effectively meet the diverse needs of students, they contribute meaningfully to higher levels of student satisfaction (Kakada et al., 2019). Student support services, including academic advising, technological resources, social integration programmes, and campus facilities, provide the necessary infrastructure and assistance for students to thrive. When students perceive these services as adequate, accessible, and of high quality, their overall satisfaction with their educational experience increases (Kakada et al., 2019). This heightened satisfaction reflects the successful fulfilment of their needs and expectations. Therefore, student support satisfaction is achieved when there is seamless interaction between the provision of support services and the resultant student satisfaction. It is not merely the presence of these services but their effective implementation and the positive experiences they generate for students that define student support satisfaction. This concept underscores the importance of a holistic approach where all aspects of support are interconnected and collectively contribute to a fulfilling and supportive educational environment.

Relevant Theories

The theoretical framework of this study is grounded in the theories of customer segmentation (Smith, 1956), customer satisfaction (Fornell, 1992), and theory of practice (Bourdieu, 1977, 1984, 1986, 1993). Customer segmentation theory (Smith, 1956) has been a cornerstone of marketing strategy, allowing businesses to divide their market into distinct subsets of consumers with shared characteristics and tailor their products and services to meet the specific needs of these groups. This theory has evolved significantly with advancements in data analytics and technology, offering more refined and dynamic segmentation approaches that enhance the effectiveness of marketing strategies (Wedel & Kamakura, 2012). The theoretical framework of customer segmentation provides a valuable lens through which it is possible to analyse student satisfaction with support services. By identifying distinct student segments and tailoring services to meet their specific needs, it is possible to take targeted initiatives to enhance the overall student experience, support academic success, and improve retention.

Similarly, the literature on service satisfaction and effectiveness is extensive, focussing on classic traditional models to evaluate various industries and organisations. Fornell's (1992) customer satisfaction index provides a comprehensive framework, linking customer satisfaction with its precursors (expectations, perceived quality, and value) and its outcomes (complaints and loyalty). SERVQUAL, developed by Parasuraman et al. (1988) along with the quality expectation model by Zeithaml et al. (1990), identifies gaps between customer expectations and perceptions across dimensions like tangibles, reliability, responsiveness, assurance, and empathy. These models help organisations pinpoint discrepancies between expected and actual service delivery, offering a clear method to address service quality issues. The Kano model (Kano et al., 1984) further categorises customer preferences into must-be quality, one-dimensional quality, attractive quality, indifferent quality, and reverse quality, aiding organisations in prioritising features and improvements based on their impact on customer satisfaction. This model offers strategic insights into how different service attributes contribute to overall satisfaction, guiding service development and enhancements. The

customer effort score (Dixon et al., 2010) measures the ease of customer interactions, emphasising the reduction of customer effort as a key driver of loyalty, thereby providing actionable insights for process improvements and reducing friction points in customer service.

In educational settings, these models are particularly beneficial as they offer a structured approach to understanding and enhancing student experiences. They help organisations identify strengths and areas for improvement in their services. However, these models have limitations (Ilias et al., 2008; Ham & Hayduk, 2003). They often focus on surface-level interactions and immediate perceptions, potentially oversimplifying the complex experiences of students. The models mentioned above might not fully capture the diverse needs of students, particularly those from varied sociocultural backgrounds, leading to an incomplete understanding of the deeper factors influencing student satisfaction and service effectiveness. In this context, Bourdieu's theories (1977, 1984) provide a valuable complement to these models by introducing concepts of practice, habitus, capital, and field.

Bourdieu's (1977, 1984, 1986, 1993) theories emphasise the significance of socio-demographic factors in shaping individuals' experiences and perceptions. Integrating Bourdieu's insights can enhance traditional models, offering a more comprehensive understanding of student satisfaction. Bourdieu's framework underscores how students' backgrounds, including their social resources, cultural knowledge, and ingrained habits, influence their interactions with university services. His perspective is crucial for addressing the specific needs of individual students, particularly those who may face additional challenges, such as working students. These students often juggle multiple responsibilities and have different expectations and requirements from university services compared to their peers. Incorporating Bourdieu's theories into service satisfaction evaluations adds a critical layer of analysis often missed by traditional models that just include social dimensions in a linear fashion. It ensures that evaluations of student satisfaction take into account not just their immediate impressions but also the larger social reality in which they function. His approach acknowledges the diversity of student experiences and the necessity of tailoring services to meet their unique needs, ultimately fostering a more inclusive and effective strategy for enhancing satisfaction and support within educational institutions.

Bourdieu's notion of habitus, which refers to the ingrained habits, skills, and dispositions individuals possess due to their life experiences, can help in understanding how working students navigate and perceive university support services. Working students, balancing multiple responsibilities, develop specific coping mechanisms and expectations based on their backgrounds. These experiences shape their habitus, influencing their expectations and satisfaction levels with support services. For instance, a working student might seek different types of support than a traditional full-time student. Understanding their habitus allows for the identification of support services that align better with these students' unique needs and experiences.

Moreover, Bourdieu's concept of capital, encompassing economic, cultural, social, and symbolic forms, is instrumental in analysing support service satisfaction. Each type of capital plays a distinct role in shaping students' experiences and perceptions of the services they receive. Cultural capital, which includes educational background, skills, and knowledge, affects how students navigate and interact with support services. Those with higher cultural capital may find it easier to understand and utilise complex systems or communicate their needs

effectively, leading to better outcomes and increased satisfaction. Conversely, students with lower cultural capital might struggle with these aspects, potentially leading to frustration and dissatisfaction with support services. Social capital, which involves networks and relationships, is crucial for support service satisfaction. A strong network of family, friends, and acquaintances can provide valuable information, emotional support, and advocacy, enhancing the overall experience with support services. Symbolic capital, associated with prestige and recognition, also influences support service satisfaction. Students who perceive themselves as valued by service providers may feel more satisfied with the support they receive.

Additionally, Bourdieu's idea of the field, referring to the various social arenas where people compete for resources and status, provides a lens to view the university environment itself. The university can be seen as a field with its own rules, norms, and forms of capital. Working students might find themselves at a disadvantage in this field if the dominant forms of capital valued by the university, such as cultural capital in the form of academic knowledge and campus involvement, are not those they possess abundantly. Similarly, the workplace where students are employed can be viewed as a field, and the capital embedded there can influence these students' academic lives. Understanding the dynamics of this field reveals how universities can adjust their support services to be more inclusive. By adopting a Bourdieu-inspired approach, it is possible to critically examine and understand student satisfaction in a more equitable way.

Previous Studies

Student support services are essential for fostering student retention and success (Tinto, 1987, 2023). These seminal works argue that these services create a supportive learning environment that enhances student engagement and academic achievement. Kuh et al. (2006) concur, emphasising that effective student support services significantly contribute to higher levels of student engagement and academic performance. They note that these services help students navigate their educational journey, thereby improving retention rates and overall success. Conversely, Bean (1980) suggests that student support services play a vital role in shaping students' academic and social integration, influencing their decision to persist or drop out. These services are particularly important for non-traditional students, including those who work while studying.

Despite their importance, the utilisation of university support services is inconsistent among students. Research by Perna (2010) indicates that while these services are crucial for academic success, not all students take advantage of them due to various barriers such as time constraints, lack of awareness, and perceived irrelevance. Dundes and Marx (2006) found that many students, especially those balancing work and study, face time limitations that prevent them from accessing support services. Their study highlights that working students often prioritise immediate academic and work responsibilities over seeking additional support, even if it could be beneficial in the long run.

Additionally, the literature indicates that several institutional factors affect student satisfaction with support services. Elling and Elling (2000) and Mann (2020) found that many students are less engaged with available support services due to gaps in communication and outreach by universities. Cultural and psychological factors, such as the stigma of seeking help and the perceived irrelevance of services, also play a role (Bryson, 2014; Vogel et al., 2010).

Career centres often prioritise placement over exploration, limiting opportunities for students to explore diverse career paths (Yang et al., 2012).

Universities operate within unique settings and resource constraints, offering various services like Work-Integrated Learning (WIL), academic support, social support, and psychological assistance to meet student needs. However, access to these programmes can vary, requiring tailored approaches for equitable participation (Jackson & Dean, 2023). Support services are crucial for working students who face unique challenges that impact their academic and personal lives (Remenick & Bergman, 2021; Dominguez-Whitehead, 2017). These students benefit from tailored advice, flexible learning solutions, and specialised support (Andrewartha & Harvey, 2017; Brar et al., 2012; Dey & Cruzvergara, 2014). Mentorship significantly influences career planning and job search intentions, reducing self-defeating behaviours and enhancing career success (Renn et al., 2014; Shen & Herr, 2004). International studies highlight diverse counselling practices, with research emphasising technology integration, strategic marketing, robust alumni networks, and employer relationships (Lee & Goh, 2003; Furbish, 2012; McKenzie & Howell, 2005). Localised approaches ensure inclusivity and equity in career services (Mcilveen et al., 2005). Flexible and accessible support services are vital for working students. Specialised services for student-athletes and graduates help them balance commitments and adapt to the labour market, respectively (Fahrner & Burk, 2023; Ryndak et al., 2022). Employment and career centres enhance job searching, resume building, and interview preparation, with reliability, tangible support, assurance, and empathy being crucial factors in improving these services and student satisfaction (Ciobanu, 2013; Hasan, 2019).

However, students' expectations and perceptions of service quality are influenced not only by the adequacy of the services but also by their unique backgrounds. These backgrounds shape their needs and how they assess the effectiveness of the support they receive (Oldfield & Baron, 2000). For instance, a first-generation college student might prioritise academic advising and mentorship differently than a student with a family history of higher education. In the same vein, students who are employed full-time may have unique requirements for social integration support in comparison to traditional full-time students. Therefore, educational institutions must gather detailed information about their students' socio-demographic characteristics to tailor support services effectively. In this context, several studies have highlighted the role demographic factors play in student satisfaction. Martirosyan (2015) demonstrated that gender, institution type, residence status, and employment status significantly predict overall satisfaction with the college experience, whereas factors such as age, academic classification, academic major, institution location, and housing status do not have a statistically significant impact. Nwenyi and Baghurst (2013) emphasised that years in school, race, and ethnicity were also significant predictors, while academic discipline, age group, and gender were not. Additionally, Ham and Hayduk (2003) found a link between age and satisfaction.

The discussion thus far underscores the complexity of support service satisfaction, particularly for working university students, by highlighting that different demographic factors can play varying roles in shaping their experiences. As such, educational institutions need to adopt an approach that considers the diverse backgrounds of these students to enhance support service satisfaction effectively. By doing so, they can better meet the distinct needs of their

student populations, ultimately fostering a more supportive and satisfying educational environment.

Method

Objective and Task

The primary aim of this research is to provide insights that can help universities tailor their support services more effectively to meet the specific needs of diverse student groups, particularly working university students in Estonia. For this purpose, the study has adopted the mixed method (Bryman, 2016; Creswell, 2012) and assigned the following tasks:

(1) To calculate the perceived satisfaction levels regarding the support services available to working students.

(2) To determine the association between socio-demographic variables and their satisfaction level with study support services.

(3) Perform interviews based on the findings from previous tasks to identify students' specific support service needs.

Source of Data

For research tasks 1 and 2, data from the Eurostudent VII survey (Cuppen et al., 2023) was utilised, focusing specifically on working students. Out of the total 2,760 Estonian student respondents, 1,902 were working students, defined as university students who combine their studies with paid employment. The Eurostudent VII survey method report (Cuppen et al., 2021) highlights important information regarding the validity and reliability of the survey across different countries. Moreover, previous research (Toyon, 2024b) has also demonstrated the validity and reliability of the Eurostudent data, specifically for working students in Estonia.

Table 1 includes the sample characteristics. The working student sample consisted of 57.7% pursuing a bachelor's degree (ISCED 6), 36.6% enrolled in master's programmes (ISCED 7), and 5.6% in long national degree programmes (exceeding three years). The age distribution was varied: 18.5% were 21 years old or younger, 24.3% were between 22 and 24 years old, 21.3% were between 25 and 29 years old, and 35.9% were 30 years or older. There was also a notable gender disparity, with females representing 76.9% of the demographic and males comprising 23.1%.

Table 1
Sample Details

Variables	Frequency	Percent
Gender:		
Female	1463	76.9
Male	439	23.1
Age:		
Up to 21 years	351	18.5
22 to <25 years	463	24.3
25 to <30 years	405	21.3
30 years or over	683	35.9
Parents education:		
Low education background (ISCED 0-2)	118	6.2
Medium education level of parents (ISCED 3-4)	488	25.7
High education level of parents (ISCED 5-8)	1232	64.8
No answer	38	2.0
Don't know	26	1.4
Qualification:		
Bachelor	1098	57.7
Master	697	36.6
Long national degree	107	5.6
Field of study:		
Education	212	11.1
Arts and humanities	316	16.6
Social sciences, journalism, and information	253	13.3
Business, administration, and law	367	19.3
Natural sciences, mathematics, and statistics	122	6.4
ICTs	151	7.9
Engineering, manufacturing, and construction	95	5.0
Agriculture, forestry, fisheries, and veterinary	15	.8
Health & welfare	293	15.4
Services	75	3.9
No answer	3	.2
Working hour:		
1-20h	675	35.5
>20h	1181	62.1
Education-job matching:		
Matched	788	41.4
Unmatched	429	22.6
	N	
	1902	100

The Eurostudent VII survey identifies five key areas of student support services, as outlined in [Table 3](#). Firstly, it assesses satisfaction with study support services, such as organised tutoring, academic writing assistance, bridging courses, and mentoring. Secondly, it evaluates satisfaction with the provision of learning facilities, including libraries, computer centres, and workplaces. Thirdly, the survey measures satisfaction with support for balancing studies and paid jobs. Fourthly, it examines support for balancing studies and family responsibilities. Lastly, it assesses satisfaction with the support provided in preparing for future work life. These variables are measured on a 5-point scale, ranging from 'entirely sufficient' to 'not sufficient at all'.

Besides these, the socio-demographic variables considered in this study include students' age, field of study, highest education attainment of their parents, education level, number of hours worked, and education-job alignment.

Following the insights gained from research tasks 1 and 2, interviews were conducted with university students for research tasks 3. The sample ([Table 2](#)) consisted of 8 working students purposefully selected to represent a diverse range of fields of study, qualification levels, ages, work statuses, and education-job alignments. [Table 2](#) details the characteristics of the

interviewee sample. Students were asked what additional services they wanted from the universities beyond those they currently received. Each interview was conducted at different points in time, from 2022 to 2023. These students were approached personally through snowball techniques, and each interview lasted 45 minutes.

Table 2

Interviewee Details

Interviewee number	serial	Field of study	Qualification	Age	Weekly working hour	Education-job alignment
1		ICTs	Bachelor	22	<20 hours	Matched
2		Health and welfare	Master	25	<20 hours	Matched
3		Business	Bachelor	24	>20 hours	Matched
4		Natural sciences	Master	28	>20 hours	Matched
5		Engineering	Bachelor	23	<20 hours	Mismatched
6		Social sciences	Master	26	<20 hours	Mismatched
7		Humanities	Bachelor	25	>20 hours	Mismatched
8		Services	Master	29	>20 hours	Mismatched

Analytical Strategy

For research task 1 and 2, besides descriptive measures, the exhaustive Chi-squared Automatic Interaction Detection (CHAID) technique has been employed to accomplish these tasks. The independent variables include the socio-demographic factors mentioned earlier, while the dependent variables (see Table 3) pertain to aspects relevant to student support services. Exhaustive CHAID is an advanced statistical technique used for identifying interactions between variables and predicting outcomes (Milanović & Stamenković, 2016). Primarily, exhaustive CHAID is utilised for classification and regression analysis, making it especially reliable in various fields like market research, medical research, and educational studies to understand how different factors influence a particular outcome. The technique starts by splitting the data into distinct groups based on independent variables. It examines all possible splits for each variable to find the one that best separates the data in terms of the dependent variable. Using Chi-squared tests, exhaustive CHAID determines the statistical significance of each split, evaluating whether the observed differences in the dependent variable between groups are significant. If some categories of a variable are not significantly different, the method merges them, reducing complexity and ensuring that only meaningful distinctions are made. The process of splitting and merging continues iteratively, forming a tree structure where each node represents a subset of the data with similar characteristics. The algorithm explores all potential splits exhaustively at each step, ensuring the most optimal split is chosen. The process stops splitting when no further significant splits can be found or when other predefined criteria, such as minimum node size or maximum tree depth, are met.

Table 3
Specifications of CHAID Analysis

	Model 1	Model 2	Model 3	Model 4	Model 5
Specifications:	Exhaustive Chi-square automatic interaction detection				
Growing method	Exhaustive Chi-square automatic interaction detection				
Dependent variable	SS1	SS2	SS3	SS4	SS5
Independent variables	D2 Age, D3 Highest educational attainment of parents lo/med/hi, D4 Qualification studied for, D5 Field of study, D8 Number of hours students work, D9 Education-job matching				
Validation	Cross Validation	Cross Validation	Cross Validation	Cross Validation	Cross Validation
Maximum tree depth	3	3	3	3	3
Minimum cases in parent node	100	100	100	100	100
Minimum cases in child node	50	50	50	50	50
Results:					
Independent variables included	D5 Field of study, D9 Education-job matching	D5 Field of study, D2 Age	D4 Qualification studied for, D9 Education-job matching, D2 Age	D5 Field of study, D8 Number of hours students work	D2 Age, D5 Field of study, D9 Education-job matching
Number of nodes	7	10	10	7	11
Number of terminal nodes	5	7	7	5	7
Depth	2	2	3	2	3

Note. SS1 = Satisfaction with study support services (e.g., organised tutoring, academic writing, bridging courses, mentoring), SS2 = Satisfaction with provision of learning facilities (e.g., library, computer centre, work places), SS3 = Satisfaction with support to balance my studies and paid job, SS4 = Satisfaction with support to balance my studies and family, SS5 = Satisfaction with support in the preparation for my (future) work life

Exhaustive CHAID offers several advantages (Milanović & Stamenković, 2016). By examining all possible splits, it ensures a thorough analysis, potentially revealing subtle interactions between variables that might be missed with simpler methods. The resulting tree structure is easy to interpret, showing how different variables and their interactions lead to variations in the dependent variable. Additionally, it can handle various types of data, including nominal, ordinal, and continuous variables, making it versatile for different research contexts. This advanced statistical method is particularly suitable for identifying interactions between variables and predicting outcomes, making it highly reliable for this type of research. CHAID's iterative process of splitting and merging data based on statistical significance ensures that the resulting model is both detailed and accurate (Milanović & Stamenković, 2016). The cross-validation approach used in the CHAID analysis further validates the robustness of the findings by preventing overfitting and ensuring that the model performs well on unseen data. Table 3 presents the specifications of the exhaustive CHAID extracted from the SPSS-23 used in this research.

For research tasks 3, after collecting the interview data, the data were analysed using the thematic analysis technique. Thematic analysis is an analytical strategy that examines qualitative data, such as interview transcripts or survey responses, to identify categories and trends that can provide deeper insights into a particular research issue or topic (Guest et al., 2012). Initially, all interview transcripts were read multiple times to gain a thorough understanding of the content. The identified themes were reviewed and refined to ensure they accurately represented the data, involving a check to see if the themes worked in relation to the

coded extracts and the entire data set. Ethical considerations were meticulously addressed throughout the research process. Participants were fully informed about the study's purpose, procedures, and their rights, including the right to withdraw at any time. Confidentiality and anonymity were strictly maintained to protect participants' privacy.

Combining quantitative and qualitative analytical techniques not only triangulates the data but also provides a comprehensive understanding of the research problem. In this way, the findings become robust and well-rounded, offering both numerical insights and deeper, more detailed perspectives. The quantitative data offers objective views, while the qualitative data enriches this by providing detailed insights into individual experiences and needs. Blending these approaches creates a more complete and reliable picture, ultimately enhancing this study's ability to inform effective support services for working university students in Estonia.

Results

Levels of Satisfaction with Various Student Support Services

In the assessment of student satisfaction with support services, the findings for each category present a different picture (see Table 4). For study support services (SS1), the overall sentiment is moderately positive. A considerable portion of students find these services either sufficient or entirely sufficient (35.3%). However, a notable percentage remains neutral (21.2%), indicating room for improvement. Additionally, a significant number of students express dissatisfaction (10.4% not sufficient at all) or a lack of need for these services (18.9%). The mean score of 3.40, with a standard deviation of 1.71, suggests that while the services meet the needs of some students, others find them lacking or unnecessary.

In contrast, satisfaction with the provision of learning facilities (SS2) is notably high. A majority of students report that these facilities are entirely sufficient (37.8%) or sufficient (31.0%). Only a small fraction expresses dissatisfaction or no need for these facilities (7.5%). The mean score of 2.25, with a lower standard deviation of 1.44, reflects higher satisfaction and more consistent experiences among students compared to study support services.

Table 4

Levels of Satisfaction with Various Student Support Services

Services and satisfaction levels	Working students perception							Total	Mean (SD)
	Entirely sufficient	-	-	-	Not sufficient at all	I do not need /want support	No answer		
	Count %	Count %	Count %	Count %	Count %	Count %	Count %		
SS1	299 15.7 %	372 19.6%	403 21.2%	259 13.6%	197 10.4%	360 18.9%	12 .6%	1902 100.0%	3.40 1.71
SS2	719 37.8%	589 31.0%	285 15.0%	107 5.6%	40 2.1%	141 7.4%	21 1.1%	1902 100.0%	2.25 1.44
SS3	183 9.6%	277 14.6%	401 21.1%	373 19.6%	389 20.5%	252 13.2%	27 1.4%	1902 100.0%	3.67 1.52
SS4	173 9.1%	206 10.8%	367 19.3%	302 15.9%	271 14.2%	555 29.2%	28 1.5%	1902 100.0%	4.04 1.67
SS5	217 11.4%	335 17.6%	517 27.2%	368 19.3%	231 12.1%	213 11.2%	21 1.1%	1902 100.0%	3.37 1.48

Note. SS1 = Satisfaction with study support services (e.g., organised tutoring, (academic) writing, bridging courses, mentoring), SS2 = Satisfaction with provision of learning facilities (e.g., library, computer centre, work places), SS3 = Satisfaction with support to balance my studies and paid job, SS4 = Satisfaction with support to balance my studies and family, SS5 = Satisfaction with support in the preparation for my (future) work life, SD = Standard deviation.

Support to balance studies and a paid job (SS3) appears to be a challenging area. While some students are satisfied (9.6% fully satisfied), a significant portion expresses dissatisfaction (19.6% not sufficient and 20.5% not sufficient at all). A notable 21.1% of students remain neutral. The mean score of 3.67 and a standard deviation of 1.52 indicate that while some students benefit from this support, many others do not find it adequate, highlighting a substantial demand for better support in balancing work and studies.

Support to balance studies and family life (SS4) shows diverse responses. A significant portion of students (29.2%) indicate no requirement or desire for this type of support, which may reflect varying personal circumstances. Satisfaction levels are mixed, with some students fully satisfied (9.1%) and others entirely dissatisfied (14.2%). The mean score of 4.04, with a standard deviation of 1.67, suggests that while some students are content with the support provided, a substantial portion do not find it necessary or adequate.

Lastly, satisfaction with support in preparation for work life (SS5) reveals a mixed but moderately positive picture. Many students remain neutral (27.2%), while a considerable fraction expresses satisfaction (11.4% entirely sufficient, 17.6% sufficient). However, a significant number are completely dissatisfied (12.1%) or feel no need for this support (11.2%). The mean score of 3.37, with a standard deviation of 1.48, indicates moderate satisfaction with noticeable variability in perceptions.

Interaction of Socio-Demographic Factors with Support Service Satisfaction

Study Support Services

The initial CHAID tree (see [Figure 1](#)) presents an analysis of satisfaction with study support services (e.g., organised tutoring, academic writing, bridging courses, mentoring) among working university students in Estonia, broken down by statistically significant factors such as their field of study (Chi-square = 44.03, $p = .001$) and whether their job matches (Chi-square = 19.44, $p = .03$) their field of education. The decision tree identifies three main clusters.

The first cluster includes ICTs, education, social sciences, journalism and information, engineering, manufacturing and construction, agriculture, forestry, fisheries, and veterinary. This cluster shows a relatively balanced distribution among the categories of satisfaction. However, a notable proportion of students express that they do not need or want support (19.3%), and only a small percentage find the support entirely sufficient (12.6%).

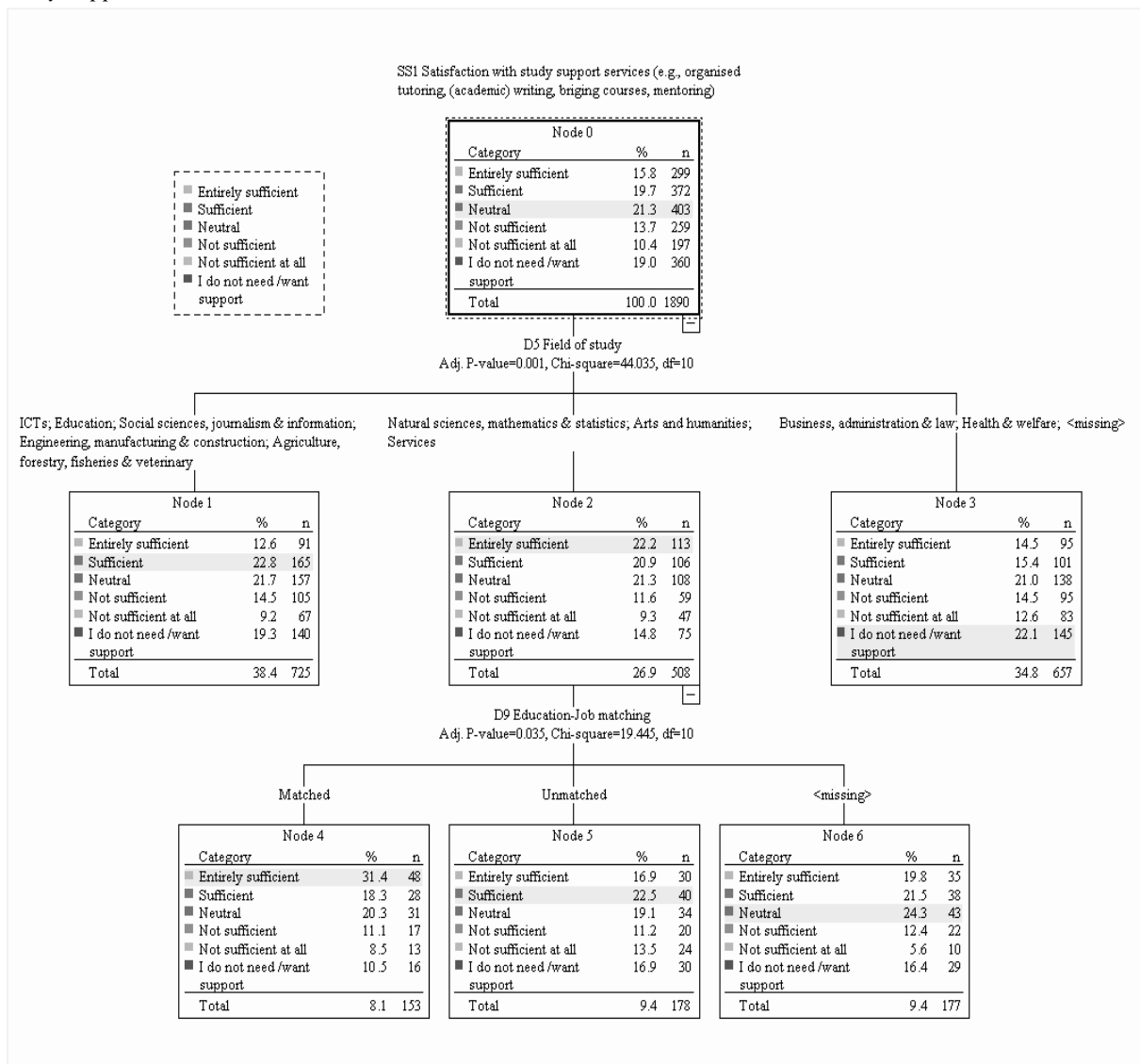
The second cluster comprises the natural sciences, mathematics and statistics, arts and humanities, and services. Students in these fields report a higher satisfaction level, with 22.2% rating the support as entirely sufficient. This group also has a lower proportion of students stating they do not need or want support (14.8%) compared to the first cluster. Within this cluster, further differentiation is based on whether the students' education aligns with their job expectations. Students whose education aligns with their job expectations report higher satisfaction, with 31.4% finding the support entirely sufficient and only 10.5% indicating they do not need or want support. It suggests that the perceived relevance of study support services is higher when students see a clear link between their studies and future employment. Conversely, satisfaction decreases among students whose education does not align with their job expectations, with only 16.9% rating the support as entirely sufficient and 16.3% stating

they do not need or want support. This indicates that a misalignment between education and job expectations can lead to the perception that study support services are less beneficial or relevant.

The third cluster includes students from the business, administration, law, and health and welfare fields. This cluster reveals a higher percentage of students who do not need or want support (22.1%). Satisfaction levels are relatively lower, with only 14.5% rating the support as entirely sufficient.

The findings from this CHAID (i.e., Figure 1) analysis highlight the importance of tailoring study support services (e.g., organised tutoring, academic writing, bridging courses, mentoring) to the specific needs of different fields of study. Particularly, it advocates that students in fields with a clear connection to job, such as natural sciences, mathematics, statistics, arts, and humanities, are more likely to value these services. Conversely, students in fields such as business, administration, law, and health and welfare may require different types of support or have different expectations.

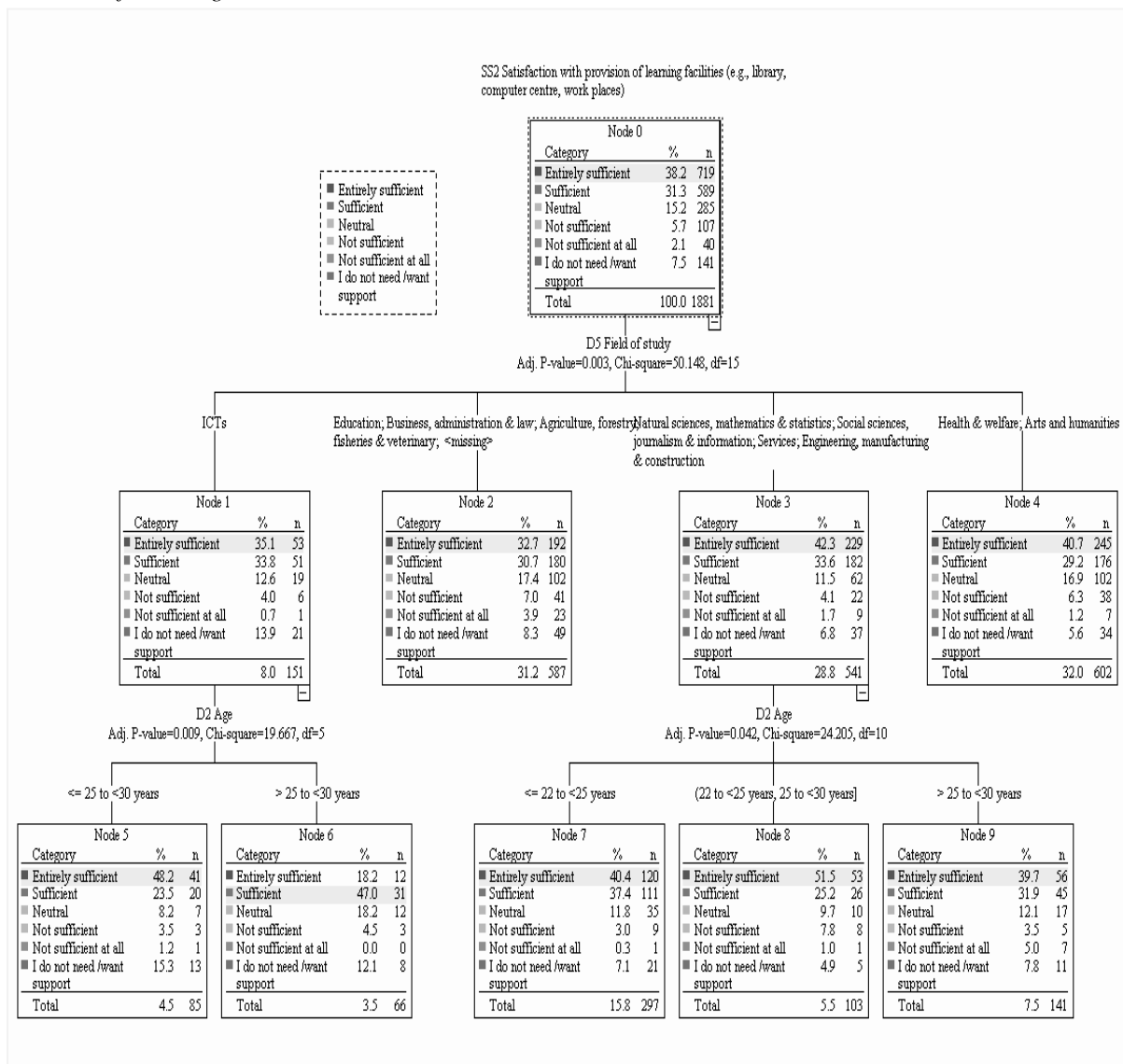
Figure 1
Study Support Services



Provision of Learning Facilities

The second tree (see Figure 2) analyses satisfaction with the provision of learning facilities (e.g., library, computer centre, work places) among working university students in Estonia. The analysis indicates that satisfaction with learning facilities is predominantly influenced by the field of study (Chi-square = 50.14, $p = .003$). Within the field of ICTs, satisfaction is further refined by age (Chi-square = 19.66, $p = .009$), with younger students (≤ 25 to ≤ 30 years) showing higher satisfaction levels (48.2% entirely sufficient) than older students (> 25 to ≤ 30 years). Education, business, administration and law, agriculture, forestry, fisheries, and veterinary fields exhibit a moderate level of satisfaction (32% entirely sufficient) without further age differentiation. Students in the natural sciences, mathematics and statistics, social sciences, journalism and information, services, and engineering fields report higher satisfaction, with younger students (25 to ≤ 30 years) (Chi-square = 24.20, $p = .04$) expressing significant satisfaction (51.5% entirely sufficient). The health, welfare, arts, and humanities fields also show higher satisfaction levels (40.7% entirely sufficient).

Figure 2
Provision of Learning Facilities



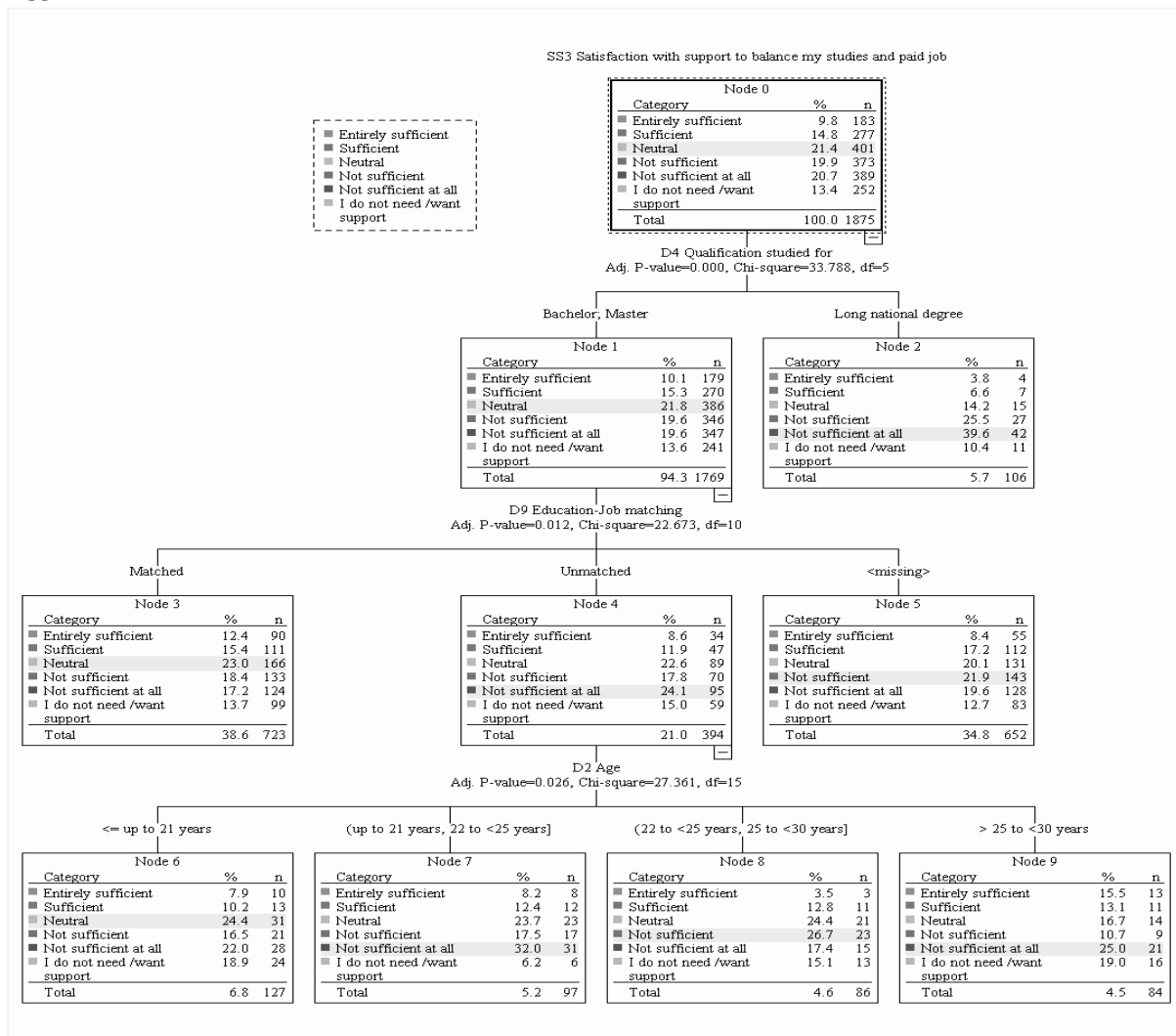
Support to Balance Studies and Job

The third tree (see [Figure 3](#)) examines satisfaction with support services to balance studies and paid jobs among working university students in Estonia.

The first split follows based on the qualification students are studying for, differentiating between those pursuing a bachelor's or master's degree (node 1) and those pursuing a long national degree (node 2). Here, the split is statistically significant (Chi-square = 33.78, $p < .001$), suggesting that the type of qualification has a major influence on satisfaction levels. Node 1, representing the majority of the sample (1,769 students), is further split based on the match between education and job (node 3 and node 4). The second split is also statistically significant (Chi-square = 22.67, $p < .012$). Node 3 shows that among students with a matched education-job situation, 12.4% find the support entirely sufficient, with a notable 13.7% indicating they do not need or want support. Node 4, representing students with an unmatched education-job situation, shows lower satisfaction, with 8.6% finding the support entirely sufficient and a higher percentage, 15.0%, not needing or wanting support. Within this unmatched cluster, further splits based on age (Chi-square = 27.36, $p = .02$) reveal that younger students (node 6), up to 21 years, have 7.9% of student finding support entirely sufficient, but 16.5% find it not sufficient at all. In the age group up to 21 years and 22 to <25 years (node 7), 17.5% are not satisfied at all. Those aged 22 to <25 years (node 8) show very low levels of complete satisfaction (3.5%), with a significant 26.7% finding support not sufficient at all. Older students, over 30 years (node 9), have a higher rate of complete satisfaction at 15.3%, yet 25% find it not sufficient at all.

These findings show that satisfaction with support for balancing studies and paid jobs is influenced by the qualifications studied. Students pursuing bachelor's or master's degrees show varied levels of satisfaction, further influenced by whether their education matches their job expectations. Those with matched education and job expectations report higher satisfaction levels compared to those whose education does not match their job expectations. Age further differentiates satisfaction among students with unmatched education-job alignment, with younger students (<25 years) showing more dissatisfaction. Students pursuing long national degrees report significantly lower satisfaction levels, with a high percentage finding the support not sufficient or not sufficient at all.

Figure 3
Support to Balance Studies and Job



Support to Balance Studies and Family

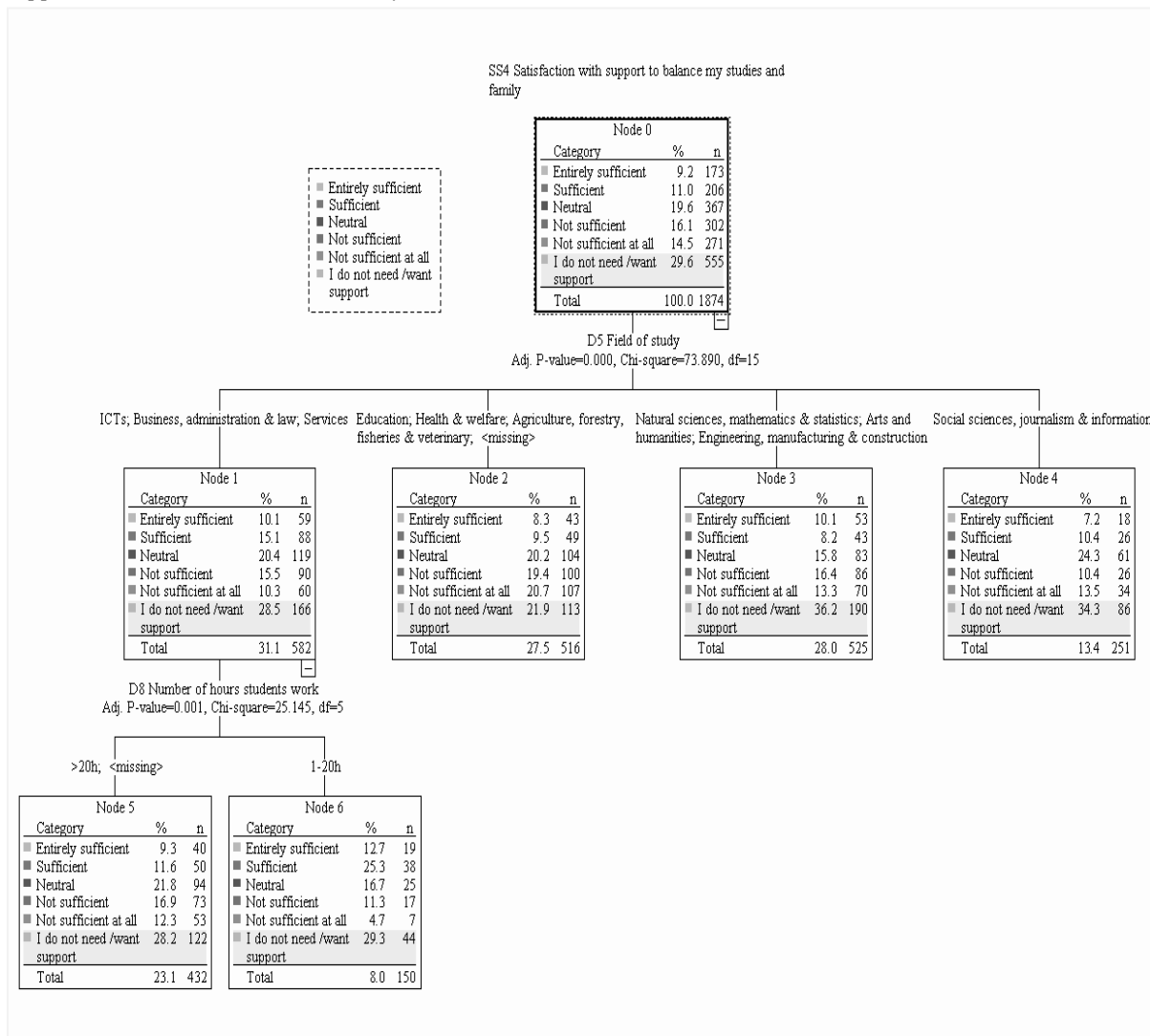
The fourth tree (see Figure 4) shows the satisfaction with support to balance studies and family among working university students in Estonia, with the root-node (node 0), similar to other trees, representing satisfaction levels categorised from ‘entirely sufficient’ to ‘I do not need/want support’.

The first significant (Chi-square = 73.89, $p < .001$) split happens based on the field of study. Nodes 1 to 4 represent different fields of study with varying levels of satisfaction. For instance, node 1 includes students from ICTs, business, administration, law, and services, showing a high percentage (28.5%) indicating they do not need or want support. Node 2 represents fields like education, health, welfare, and agriculture, among others, with 21.9% not needing or wanting support. Node 3 includes natural sciences, mathematics, statistics, arts and humanities, and similar fields, with a notably high percentage (36.2%) not needing or wanting support. Node 4 comprises social sciences, journalism and information, with 34.3% not needing or wanting support. The second significant (Chi-square = 25.14, $p = .001$) split within node 1 is built on the number of hours students work per week. Node 5 shows students working more

than 20 hours per week, with 11.3% finding support entirely sufficient, and 28.2% not needing or wanting support. Node 6, representing students working 1-20 hours per week, shows higher satisfaction with 12.7% finding support entirely sufficient, and only 2.9% not needing or wanting support.

These results indicate that the field of study significantly influences the perceived need for support services to balance studies with family life, with students in certain fields indicating a lesser need for such support. Students in ICTs, business, administration, law, and services show varied satisfaction levels, further influenced by their work hours. Those working 1–20 hours per week report higher satisfaction levels than those working more than 20 hours. Students in education, health, welfare, agriculture, forestry, fisheries, and veterinary fields exhibit moderate levels of satisfaction, with significant proportions indicating insufficient support. The natural sciences, mathematics, statistics, arts and humanities, and engineering fields show lower satisfaction, with a high percentage indicating they do not need or want support. The social sciences, journalism, and information fields also show lower satisfaction, with a notable proportion indicating they do not need or want support.

Figure 4
Support to Balance Studies and Family

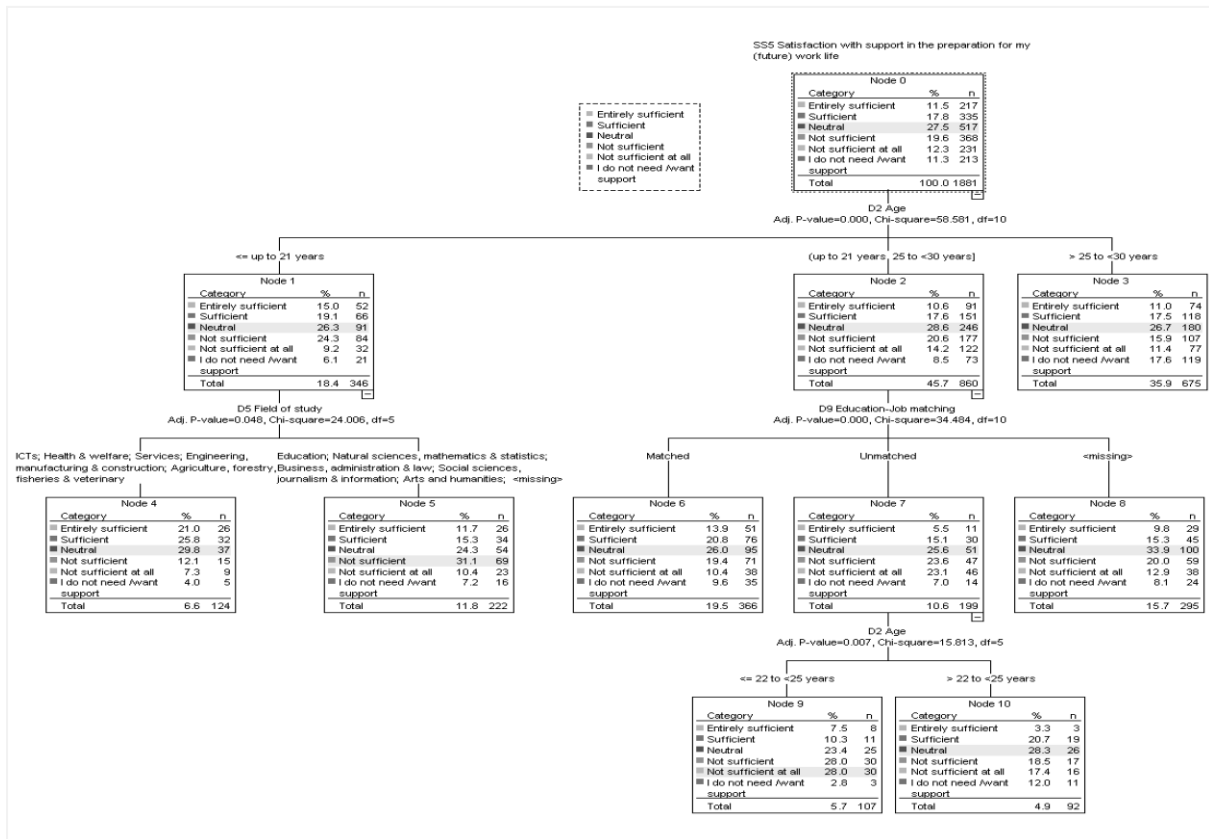


Support in Preparation for Work Life

The decision tree (Figure 5) analyses satisfaction with support in preparation for future work life among working university students in Estonia. The primary split (Chi-square = 58.58, $p < .001$) is based on students' age, dividing them into three groups: up to 21 years, 21 to <30 years, and over 30 years. Each age group is further split based on their field of study and the match between their education and job, indicating these factors significantly influence students' satisfaction.

In the youngest age group (up to 21 years), the students are further segmented (Chi-square = 24.00, $p < .04$) by their field of study into nodes 4 and 5. Node 4 shows relatively higher satisfaction, with 21.0% feeling support is entirely sufficient, while node 5 shows only 11.7% feeling the same level of satisfaction. Notably, a smaller percentage in both nodes do not feel the need for such support. In the middle segment (21 to <30 years), nodes 6 and 7 are split based on the match between education and job (Chi-square = 34.48, $p < .001$). Node 6, representing those with a matched education-job situation, shows 13.9% of students are entirely satisfied with the support for (future) work-life preparation, whereas node 7 shows only 5.5% feeling entirely satisfied among those with an unmatched situation. The subsequent split (Chi-square = 15.81, $p < .001$) in nodes 6 and 7 based on age yields nodes 9 and 10. Within these nodes, satisfaction varies, with 10.5% in the younger subset (node 9) and 3.7% in the older (more than 25 years old) subset (node 10) feeling entirely satisfied with support for future work-life preparation. Notably, the need for such support seems less felt among the older age group in node 10.

Figure 5
Support in Preparation for (Future) Work Life



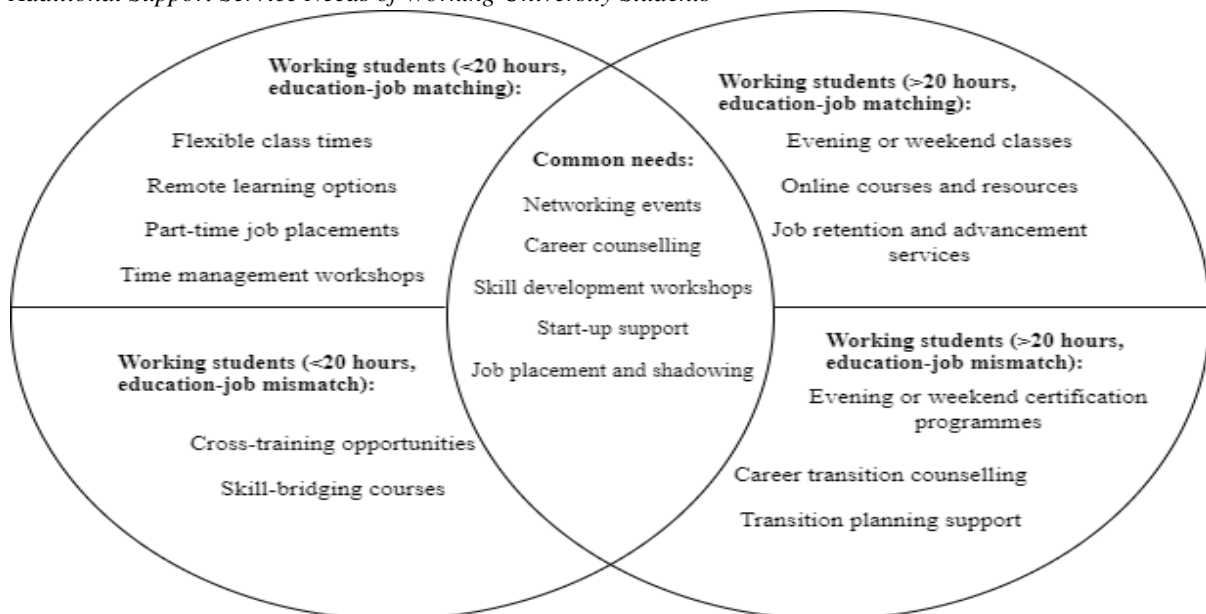
These results indicate that age is a critical factor affecting satisfaction with support for (future) work-life preparation, with younger students generally indicating higher levels of satisfaction. However, the relevance of a student's job to their field of study also influences satisfaction, with those in matched situations reporting higher satisfaction levels.

Additional Support Service Needs of Working Students

The findings discussed thus far provide a quantitative view of the factors influencing student satisfaction with various support services, including study support, learning facilities, balancing studies with paid jobs, and balancing studies with family responsibilities. The decision tree analyses reveal that student satisfaction with various support services is diverse, influenced primarily by the field of study, education-job alignment, the number of hours worked, and age. Following these insights, interviews were conducted, and further findings were generated, as illustrated in Figure 6.

Figure 6

Additional Support Service Needs of Working University Students



For instance, Interviewee 1, studying ICTs at the bachelor level and working less than 20 hours per week, stressed the importance of flexible class times, remote learning options, part-time job placements, and time management workshops. These services are crucial for students managing to align their education with their job responsibilities, but they still need flexibility and support to balance both effectively. Similarly, Interviewee 2, pursuing a master's degree in health and welfare and also working less than 20 hours per week with a matched education-job alignment, echoed these needs. Students who have education-related jobs and can work fewer hours seem to have a steady demand for this. On the other hand, those such as Interviewee 3 and Interviewee 4, both working more than 20 hours weekly in fields such as business and natural sciences, respectively, find evening or weekend classes, online courses, and job retention and advancement services more beneficial. The increased workload necessitates different support structures that accommodate their limited availability during regular hours.

For students such as Interviewee 5, studying engineering with less than 20 working hours but facing an education-job mismatch, the need for cross-training opportunities and skill-

bridging courses is apparent. This group requires specific interventions to bridge the gap between their current job skills and educational pursuits. The same need was identified by Interviewee 6 in social sciences, highlighting a recurring theme for students in mismatched jobs. Students such as Interviewee 7 in humanities and Interviewee 8 in services, who work more than 20 hours per week and face an education-job mismatch, find evening or weekend certification programmes, career transition counselling, and transition planning support essential. These services help them navigate the significant challenges posed by their heavy workload and the disconnect between their job and educational fields.

Across all these groups, common needs such as networking events, career counselling, skill development workshops, start-up support, and job placement and shadowing were identified. These services represent a foundational layer of support that can benefit all working students, regardless of their specific circumstances.

Discussion

The aim of this research was to understand the support service satisfaction levels of working university students in Estonia and how socio-demographic factors (such as students' age, field of study, qualification level, parents' education, number of hours worked, and education-job alignment) influence their satisfaction with various university support services (e.g., organised tutoring, academic writing, bridging courses, mentoring, learning facilities like libraries, computer centres, and workplaces, balancing studies with paid jobs, and balancing studies with family responsibilities). Additionally, the research sought to identify the specific services that these students need. Calculations were performed to assess the perceived satisfaction levels of working students with available support services, highlighting the link between socio-demographic variables and their satisfaction. Additionally, interviews were conducted to gain deeper insights and identify the specific support service needs of working university students.

The analysis of the level of satisfaction with student support services among working students reveals unique areas of strength as well as substantial gaps. The high satisfaction with learning facilities indicates successful resource allocation and effective infrastructure development. This finding aligns with existing literature, which emphasises the importance of well-maintained and accessible learning environments in enhancing student satisfaction and academic performance. According to Kuh et al. (2006), well-equipped learning facilities contribute significantly to the overall student experience, providing the necessary tools and environment conducive to learning. Such facilities include libraries, computer labs, and work spaces, all of which are crucial for non-traditional students, especially those who work while studying.

In contrast, the significant dissatisfaction among working students regarding support for balancing studies with work and family responsibilities underscores a critical gap. These students often struggle with time management, stress, and the competing demands of their academic, professional, and personal lives. Bean and Metzner (1985) and Ross et al. (1999), as well as more recent research conducted by Toyon (2023), have demonstrated that non-traditional students, such as those who work while studying, encounter significant difficulties in their academic pursuits as a result of these pressures. In order to fill these gaps, universities may need to come up with new ideas for comprehensive support services, determine why current help is inadequate, and offer solutions.

Additionally, the findings reveal substantial variations in satisfaction levels based on factors such as the field of study, alignment between education and job, age, qualification level, and the number of hours students work.

For study support services (e.g., organised tutoring, academic writing, bridging courses, mentoring), the most significant factor influencing satisfaction is the field of study. In addition, education-job alignment emerges as a crucial factor in fields such as natural sciences, mathematics, statistics, and arts and humanities. Satisfaction with learning facilities (e.g., library, computer centre, workspaces) is primarily affected by the field of study and age. ICT students, especially the younger ones, display higher levels of satisfaction. Similarly, students in natural sciences and engineering, particularly younger students report higher satisfaction. Support for balancing studies and jobs shows significant variation based on qualification type. Bachelor's or Master's students with aligned education and jobs express higher satisfaction (12.4% entirely sufficient) compared to those without alignment (8.6%). Younger students under 25 years old pursuing bachelor's and master's degrees are more likely to report dissatisfaction with the support for balancing studies and jobs when their education and job are not aligned.

Satisfaction with the support to balance studies and family life is influenced by the field of study and the number of work hours per week. Students in ICT and business show high levels of disinterest (28.5%). Among these students, those working fewer hours (1-20 per week) report higher satisfaction levels with the support for balancing studies and family life. Support for work-life preparation is predominantly influenced by age. Younger students generally exhibit higher satisfaction, particularly when their field of study aligns with their job. For instance, students up to 21 years old report higher satisfaction (21.0% entirely sufficient). However, for students aged 22 to 24 whose jobs do not match their education, the support for work-life preparation is significantly insufficient, with 28% indicating it is not sufficient at all.

Moreover, the findings indicated that working students have diverse additional needs for support services. For instance, working students who work fewer than 20 hours per week but whose jobs do not align with their education require cross-training opportunities and skill-bridging courses. Those who work more than 20 hours per week and whose jobs align with their education need evening or weekend classes, online courses and resources, and job retention and advancement services. Those working more than 20 hours per week but whose jobs do not match their education require evening or weekend certification programmes, career transition counselling, and transition planning support.

For university managers, these findings highlight several important points that need to be addressed to meet the diverse needs of working students. Despite the availability of specific support services at universities, their demand among working students points to critical issues that need attention. The mere presence of support services does not ensure their effectiveness or accessibility. Researchers (Ciobanu, 2013; Dominguez-Whitehead, 2017; Fornell, 1992) emphasise that student services require institutional agents to deeply understand student development and the university environment's impact on student behaviour. This implies that university managers must not only provide support services but also ensure these services are designed and delivered in a way that genuinely meets the needs of working students. Currently, support services often fall short because they are not sufficiently tailored to the unique circumstances of working students, who juggle extensive work commitments alongside their

academic responsibilities. Such inadequacy points to a critical failure in the design and implementation of these services and questions the inclusiveness as well as the responsiveness of the support mechanisms. Working students in Estonia often face rigid schedules and high demands both at work and in their studies (Toyon, 2023). If support services are not adaptable to these constraints, their effectiveness is significantly compromised. Therefore, university managers need to adopt a more personalised approach to service design, ensuring that the timing, format, and content of these services are flexible enough to cater to working students, considering their demographic factors.

The varying satisfaction levels, influenced by socio-demographic factors, highlight the inadequacy of one-size-fits-all support services. It underscores the necessity for more personalised and adaptive support systems that evolve with students' changing needs over time. The findings also point to the need for field-specific support structures that accommodate the unique characteristics of each discipline and for re-evaluating support offerings for students with heavier work commitments and education-job alignment issues. Ultimately, the critical issue is not just the availability of support services but their relevance, accessibility, and adaptability to the diverse and dynamic needs of working students.

Conclusion

This study centres on the issue of comprehending and enhancing the sufficiency and effectiveness of support services for working university students in Estonia. By analysing how socio-demographic factors (such as age, field of study, parental education, work hours, and alignment between education and job) influence students' satisfaction with various support services, the study provides valuable insights into the strengths and gaps in the current support systems. The findings substantiate important insights for organising support services by highlighting areas in which students are satisfied as well as areas that require immediate improvement.

Additionally, this research reflects Bourdieu's theoretical discourse (1977, 1984, 1986, 1993) and customer segmentation literature (Smith, 1956) by providing empirical evidence and offering valuable insights into how working students' backgrounds influence their perceptions and interactions within the university environment. Customer segmentation theory underscores the importance of customising educational support to meet the diverse needs of different student groups, while Bourdieu's theory emphasises the role of capital and habitus in shaping these needs. The varying satisfaction levels across different socio-demographic factors illustrate how the cultural capital they possess, the workplace capital they carry, and their habitus shape their experiences and the perceived quality of the services provided by universities.

While this research substantiates its novelty with its focus on the Estonian context, the integration of socio-demographic factors, the use of mixed methods, and the detailed examination of field-specific and job alignment influences on satisfaction, it does have limitations. The sample's focus on the Estonian context may restrict the generalizability of the results to other regions or countries. Future research could expand the sample to include a more diverse demographic, both geographically and culturally, to enhance the applicability of the findings. Incorporating longitudinal data and objective measures of satisfaction and support service utilisation could provide a more comprehensive understanding of the issues.

Furthermore, the study does not account for the potential impact of external factors, such as economic conditions or the qualifications and training of those providing the services, on student satisfaction. Future research should consider these variables to offer a more holistic view of the factors influencing student satisfaction with support services.

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